ELSEVIER

Forest Policy and Economics 8 (2006) 93–103

Forest Policy and Economics

www.elsevier.com/locate/forpol

Membership matters: comparing members and non-members of NIPF owner organizations in southwest Wisconsin, USA

Mark G. Rickenbach[a,*], Raymond P. Guries[a], Daniel L. Schmoldt[b]

[a]*Department of Forest Ecology and Management, University of Wisconsin-Madison, 120 Russell Labs, Madison, WI 53706-1598, USA*
[b]*Cooperative State Research, Education, and Extension Service, U.S. Department of Agriculture, USDA/CSREES/PAS, AG Box 2220, Washington, DC 20250-2220, USA*

Received 22 October 2003; received in revised form 18 May 2004; accepted 29 May 2004

Abstract

We surveyed members of two nonindustrial private forest (NIPF) owner organizations and non-members in southwest Wisconsin to learn their views and experiences on a range of forest ownership and management issues. The two organizations were the Sustainable Woods Cooperative (SWC) and the Wisconsin Woodland Owners Association (WWOA). Our survey yielded 503 completed questionnaires and a useable response rate of 69.5%. Members and non-members differed little in terms of perceived benefits of forest ownership, concerns over potential barriers to management, recent timber harvest activities and confidence in their management skills. However, members were more likely than non-members to have engaged in a variety of management activities during the last 3 years and more willing to consider future cross-boundary arrangements to benefit land stewardship. Between WWOA and SWC members, there were only two discernable differences, but the organizations are philosophically and structurally different. Given the voluntary nature of participation, no single organization can likely appeal to all owners. Yet, as the importance of landscape-scale management and biodiversity conservation increase, NIPF owner organizations could provide a mechanism for promoting and coordinating cross-boundary forest management practices.
Published by Elsevier B.V.

Keywords: NIPF owners; Nonindustrial private forests; Cooperatives; Landowner associations; Cross-boundary cooperation; NIPF management; Membership

1. Introduction

Nearly 10 million private individuals and families own forestland in the United States (Birch, 1996). Wisconsin, the location for this study, is home to 262,000 of these nonindustrial private forest (NIPF) owners that control 57% of the state's forestland (Schmidt, 1998). A variety of policy mechanisms exist that encourage or subsidize NIPF owners to manage their land, especially for commodity production, but adoption of forest management planning by NIPF owners remains limited to just 5% of all owners and

* Corresponding author. Tel.: +1 608 262 0134; fax: +1 608 262 9922.
E-mail address: mgrickenbach@wise.edu (M.G. Rickenbach).

1389-9341/$ - see front matter. Published by Elsevier B.V.
doi:10.1016/j.forpol.2004.05.006

22% of NIPF acres (National Research Council, 1998). The unordered nature of NIPF owners in the aggregate—with varied objectives, interests, knowledge and tenures—makes it difficult to connect forest owners with management assistance and information. Unlike agriculture where commodity-based organizations exist for nearly every producer type, NIPF owners lack similar organizational options. NIPF owners are different than agricultural producers in fundamental ways, but organization of NIPF owners along stewardship interest groups remains an attractive goal if it could yield more effective education and policy initiatives and, ultimately, better forest management.

Thirty-one states and 119 localities have NIPF owner organizations to further members' interests, with most landowner organizations focused on education, policy and/or lobbying (Marchant, 1996; Washburn, 1998). NIPF owner organizations that emphasize silviculture services, commodity marketing or education at the local level are rare but growing (Campbell and Kittredge, 1996; Bolen, 1996). Since 1998, seven forestry cooperatives have formed in Wisconsin to foster the business and marketing aspects of 'sustainable forestry' for local members. Forestry cooperatives, while a fixture in Europe (Kittredge, 2003), have been unsuccessful in the United States despite decades of promotion and efforts. Failure has been attributed to management and leadership problems as well as the diverse and often non-timber objectives of most NIPF owners (Simon and Scoville, 1982; USDA, 1965, 1947).

Studies of NIPF owners and their management practices are abundant (Egan, 1997; Greene and Blatner, 1986; Dennis and Sendak, 1991) extending from economics (Kuuluvainen et al., 1996; Romm et al., 1987) to the social sciences (Bliss, 1992; Bourke and Luloff, 1994). Studies that place owners in a landscape context (Rickenbach et al., 1998; Brunson et al., 1996) or that might influence the willingness of NIPF owners to participate in cross-boundary cooperation (Rickenbach and Reed, 2002; Klosowski et al., 2001), are also available, but none have examined the role of NIPF owner organizations in affecting either management behavior or a willingness to cooperate across ownerships.

The potential benefits of cross-boundary cooperation are many, including minimizing fragmentation and maintaining landscape ecological integrity (Knight and Landres, 1998), and NIPF owner organizations seem an ideal venue for translating these benefits into practice. This study compares NIPF owners in southwest Wisconsin from two organizations—Wisconsin Woodland Owners Association (WWOA) and the Sustainable Woods Cooperative[1] (SWC)—and non-members of either organization to ascertain differences in (1) perceived benefits of ownership, (2) perceived barriers to achieving ownership objectives, (3) management behavior during the last 3 years and (4) a willingness to consider cooperative activities with their neighbors. In essence, we seek to identify differences between members and non-members of NIPF owner organizations (i.e., membership is the independent variable). While these differences may be intuitive, their presence has not been verified. More importantly, the extent of such differences may be important in formulating future policy interventions.

2. Study area

We conducted this survey in a three-county area (Iowa, Richland and Sauk) of southwestern Wisconsin. We selected these counties because they are well-wooded and contain nearly all the membership of the SWC, as well as members of WWOA and many non-members. Brief descriptions of WWOA and SWC are provided below.

2.1. Wisconsin Woodland Owners Association

WWOA, founded in 1979, is the only statewide non-profit NIPF owner organization in Wisconsin. It has approximately 2200 members distributed over 13 chapters that include all but three counties in the state. Our study area was part of the nine-county Bad Axe Chapter in southwest Wisconsin. WWOA has a fourfold mission:

(1) Advance the interests of woodland owners and the cause of forestry;

[1] The five-year-old SWC declared bankruptcy, in March 2003, primarily because of unresolved debt associated with mill management. While defunct, the SWC still provides valuable insights into alternative approaches for NIPF owner organizations to foster forest stewardship by NIPF owners.

(2) Develop public appreciation for the value of Wisconsin's woodlands and their importance in the economy and overall welfare of the state;
(3) Foster and encourage wise use and management of Wisconsin's woodlands for timber production, wildlife habitat and recreation;
(4) Educate those interested in managing Wisconsin's woodlands (WWOA Internet site).

Although the membership is highly diverse, the organization tends toward a traditional forest management philosophy and has a closer relationship with the state's forest products industry and the Department of Natural Resources than did the SWC.

2.2. Sustainable Woods Cooperative

The SWC was founded in 1998 as a cooperative corporation centered in the study area. During its operation, it grew to 150 members. Unlike WWOA, it was fundamentally a business with four goals:

(1) Provide members with forest management services;
(2) Act as a processing and marketing agent;
(3) Provide education to members;
(4) Provide education to the customer (SWC Internet site).

Prior to closing, SWC had concentrated most heavily on goals (2) and (3). The SWC worked closely with environmental non-governmental organizations (ENGOs) to restore woodlands degraded by a history of high-grading, while marketing members' wood as Forest Stewardship Council (FSC) certified.

3. Methods

Based on prior focus group research (Rickenbach et al. 2001), we developed a 12-page questionnaire to investigate the differences and similarities between WWOA members, SWC members and non-members. Both NIPF owners and those familiar with survey instrument design pre-tested an initial draft of the questionnaire. In September 2001, we conducted a self-administered mail survey of 850 current NIPF owners in Iowa, Richland and Sauk counties. The survey design consisted of three mailings over 4 months: one full mailing to all respondents (including a cover letter, survey and a business reply envelope), a postcard reminder to all respondents and then another full mailing to those who had not returned their questionnaire after 3 months.

3.1. Survey sample

Our survey sample was drawn from four sources: membership rolls of the SWC and WWOA; enrollees in Wisconsin's Managed Forest Law (MFL) program, a tax deferral program that requires a management plans and mandates forestry practices; and Iowa, Richland and Sauk counties tax rolls (all NIPF owners). Our sample was randomly selected and naturally occurring duplicates across these above-named sources were removed. The final sample contained 75 individuals from the SWC mailing list, 100 WWOA members and 675 non-members from the 3 counties.

3.2. Response

Of the 850 questionnaires sent to potential respondents, 45 were not members of the intended sample, 90 were returned as undeliverable and 503 were returned complete. The adjusted response rate (503/(850−45−90)) was 69.5%. Based on respondents' self-identification of membership, the SWC and WWOA member lists proved to be not entirely accurate so we cannot calculate specific return rates by membership category.[2] For the analysis reported here, eight responses were omitted because they were members of both SWC and WWOA.

3.3. Data analysis

Based on the questionnaire's design, most responses took one of two forms: four-point Likert scale and yes/no. We calculated descriptive statistics (i.e., mean and standard deviation) for Likert scale responses. For comparisons by membership category

[2] For example, of the 75 individuals on the SWC list, 61 responded. Of these 61, only 26 were solely members of the SWC. Three were members of SWC and WWOA and another five were members of WWOA only.

(i.e., non-member, SWC member and WWOA member), we tested for differences between mean ratings using a 'general linear model' (the GLM procedure of SAS). To understand the specific relationships between membership categories, we tested the three possible pair-wise comparisons using Tukey's procedures (Neter et al., 1990). In the case of yes/no responses, descriptive statistics use percentages. For comparisons by membership categories, we calculated Pearson chi-squared statistics for each activity by those categories (Agresti 1996). When these tests proved significant, we further partitioned the data to test the three pair-wise comparisons between the membership categories. For all tests, we set the probability of committing a type I error at $p \leq 0.05$.

4. Results

Our analysis of differences between members and non-members can be organized into four themes: (1) benefits of NIPF ownership, (2) potential barriers to desired management outcomes, (3) forest management behavior and (4) willingness to consider cross-boundary cooperation on specific management activities.

4.1. Benefits of ownership

Given the relatively high scores for all benefits, the respondents, regardless of membership category, agreed on the perceived importance of the ecological, economic and quality of life dimensions of woodland ownership (Table 1). Among these three dimensions, ecological and quality of life benefits tended to rate as more important but, members appeared to place greater importance on ecological benefits that did non-members. Of the 13 potential benefits, only 4 significant differences emerged and, of these, 3 were related to ecological dimension of forests and the last related to quality of life. No differences were found for the economic dimension. SWC members identified "Appearance of historic landscape" as significantly more important than did non-members, while "Ecological habitats" and "Healthy and diverse forests" were more important for WWOA members than non-members. SWC and WWOA members both placed a similar high importance on these benefits as

Table 1
Respondents' mean rating of perceived benefits of woodland ownership and statistical comparison by membership category

	Non-member (N)		SWC (S)		WWOA (W)		*P*-value	Mean differences		
	Mean	*n*	Mean	*n*	Mean	*n*		N–S	N–W	S–W
Ecological										
Appearance of historic landscape	2.5	310	2.0	32	2.3	64	**0.0126**	**−0.5**	−0.3	−0.2[a]
Ecology habitats	1.7	307	1.4	31	1.4	64	**0.0022**	−0.3	**−0.3**	0.0
Good habitat for wildlife and/or hunting	1.4	319	1.5	33	1.3	66	0.2555			
Healthy and diverse forest	1.5	316	1.2	33	1.2	66	**0.0011**	−0.3	**−0.3**	0.0
Economic										
Income generating potential	2.5	315	2.6	33	2.2	63	0.1711			
Legacy for descendants	2.1	314	2.3	33	1.8	66	0.1083			
Real estate appreciation	2.1	315	2.4	31	2.2	65	0.2594			
Quality of life										
Aesthetic/spiritual appeal	1.7	311	1.1	32	1.3	64	**<0.0001**	**−0.6**	**−0.4**	−0.2
Ownership provides sense of community	2.4	312	2.6	32	2.3	63	0.5025			
Peaceful retreat	1.4	318	1.2	32	1.3	65	0.1875			
Place to live or retire	2.1	315	2.0	32	1.9	65	0.2620			
Rural characteristics	1.7	309	1.6	31	1.5	64	0.5514			
Site for family recreation	1.6	318	1.3	31	1.5	63	0.0603			

Bold mean differences are significant at $\alpha = 0.05$ (1 = very important, 2 = somewhat important, 3 = not very important, 4 = not at all important).
[a] Discrepancy between actual means and difference on table due to rounding.

well as "Aesthetic/spiritual appeal" than did non-members.

We note that even when means were not significantly different, in only one instance ("Real estate appreciation") did non-members identify a perceived benefit as having greater importance than at least one of the membership categories (Table 1).

4.2. Barriers to desired outcomes

There were few discernable differences between members and non-members in their degree of concern toward potential barriers to desired outcomes in forest ownership that might be viewed as either 'ecologically grounded' versus 'human-induced' (Table 2). Notably, members were significantly more concerned about "Invasive species" than were non-members. This reflects a noticeable pattern that both SWC and WWOA members tended to rate ecologically grounded concerns as greater and human-induced ones as lesser compared to non-members. All respondents indicated that "Timber harvesting" and "Lack of knowledge" were of minimal concern in meeting future objectives. Non-members were significantly more concerned about "Regulation" than were SWC members, but WWOA members did not differ from SWC or non-members.

4.3. Forest management behavior

More than half of all respondents had engaged in some form of harvesting activity (i.e., thinning or timber harvesting), removed invasive species, improved wildlife habitat or improved recreation opportunities during the last 3 years (Table 3). And more than half of the members and nearly half of non-members had also planted trees. The majority of SWC members also reported working on ecological restoration activities. Timber harvesting varied with non-members reporting 29.3%, SWC members 42.4% and WWOA members 38.8%, but differences were not significant.

While all NIPF owners are active, members appear significantly more active. Only recent timber harvesting and managing for special forest products did not differ by one or more membership categories (Table 3). For the remaining seven activities, WWOA members were much more likely to have engaged in a particular management activity than were non-members. SWC members were more likely than non-members to have engaged in five management activities: recreation, wetlands/stream improvement, invasive species control, ecological restoration and thinning. There were no differences between SWC and WWOA members on any activity.

Table 2
Respondents' mean rating of barriers to realizing future outcomes for their woodland ownership and statistical comparison by membership category

	Non-member (N)		SWC (S)		WWOA (W)		*P*-value	Mean differences		
	Mean	*n*	Mean	*N*	Mean	*N*		N–S	N–W	S–W
Ecologically grounded										
Acts of nature	2.4	316	2.5	32	2.4	65	0.5652			
Climate change	2.9	311	2.7	32	2.6	64	0.0721			
Insects and disease	2.1	316	2.0	32	1.8	65	0.0590			
Invasive species	2.1	309	1.5	32	1.7	64	**<0.0001**	**0.6**[a]	**0.4**	−0.2
Loss of native species	2.2	313	2.0	32	2.1	64	0.3759			
Human-induced										
Development	2.2	313	2.3	32	2.1	64	0.7558			
Intergenerational transfer	2.6	314	2.8	32	2.3	64	0.0736			
Lack of knowledge	2.5	315	2.8	32	2.7	64	0.0753			
Limited time	2.2	315	2.0	32	2.0	66	0.1088			
Regulation	2.0	316	2.4	33	2.1	65	**0.0169**	**−0.5**[a]	−0.1	0.3
Taxes	1.7	318	2.0	33	1.7	63	0.1498			
Timber harvesting	2.6	316	2.8	33	2.8	65	0.0900			

Bold mean differences are significant at $\alpha = 0.05$ (1 = very concerned, 2 = somewhat concerned, 3 = not very concerned, 4 = not at all concerned).
[a] Discrepancy between actual means and difference on table due to rounding.

Table 3
Percentage of respondents reporting that they had engaged in the following management activities in the last 3 years and statistical comparison by membership category

	Non-members (N) (n=389)	SWC (S) (n=33)	WWOA (W) (n=67)	P-value	Partitioned χ^2 test P-values		
					N–S	N–W	S–W
Traditional forest practices							
Recreation	51.9	72.7	74.6	**0.0004**	**0.0214**	**0.0006**	0.8386
Thinning	62.8	90.9	80.6	**0.0002**	**0.0011**	**0.0045**	0.1860
Timber harvesting	29.3	42.4	38.8	0.1136			
Tree planting	49.4	54.6	73.1	**0.0015**	0.5671	**0.0003**	0.0630
Wetlands/stream improvement	15.9	30.3	28.4	**0.0110**	**0.0352**	**0.0140**	0.8403
Wildlife habitat	54.0	66.7	77.6	**0.0008**	0.1598	**0.0003**	0.2407
Ecologically grounded practices							
Ecological restoration	13.4	51.5	31.3	**<0.0001**	**<0.0001**	**0.0004**	0.0507
Invasive species control	58.6	84.9	79.1	**0.0002**	**0.0031**	**0.0014**	0.5082
Special forest products	22.6	27.3	26.9	0.6539			

Nevertheless, SWC and WWOA members differed in terms of management planning: a measure that most foresters consider key to completing stewardship activities. WWOA members were more likely to have a written management plan than SWC members (88.1% vs. 63.6%, p-value = 0.0041), a result that paralleled participation in Wisconsin's Managed Forest Law Program (MFL). The MFL provides an alternative to ad volerum property tax treatment in exchange for participation in a program that emphasizes traditional forest management practices. Nearly three-fourths of WWOA members were enrolled in the MFL, but only one-third of SWC members participated (74.6% vs. 36.5%, p-value = 0.0002). Due to limitations in the sampling design, comparisons to non-members on management planning could not be made in a meaningful way.[3]

Despite these differences in management behavior, both members and non-members showed no significant difference in their confidence that they could do "a good job of managing their woodlands" (p-value = 0.3027). On a scale of 1 = "very confident" to 4 = "not at all confident", non-members' and SWC members' mean ratings were both 1.9 (n = 315 and n = 32, respectively), while WWOA members' mean rating was 1.8 (n = 65).

4.4. Willingness to cooperate

Perhaps the greatest differences between members and non-members was in their willingness to consider cross-boundary cooperation on 11 management practices (Table 4). In comparison to non-members, SWC members were more likely to consider seven activities: reciprocal hunting, prescribed burning, invasive species control, ecosystem management, timber sales, recreation use and ecological restoration. WWOA members were significantly more likely than non-members to consider cooperation on all cross-boundary activities except deer management. More than half of SWC and WWOA members were willing to consider cooperation on ecologically grounded practices, but showed somewhat less willingness to cooperate on more traditional forest practices. We found no differences between members of SWC and WWOA in their willingness to consider any of the cooperative activities. However, the majority of non-members were only willing to consider two cross-boundary activities: invasive species control and deer management. Deer management was the only cooperative activity on which all members and non-members reported a similar willingness (non-members: 54.2%, SWC: 63.6% and WWOA: 64.2%) to cooperate. We attribute this response to the general public's perception that deer numbers in WI are too

[3] The non-member sample was comprised of both MFL enrolled and non-enrolled landowners, but our sampling scheme was not proportional along MFL enrollment status. Comparisons relating to the non-member management planning and MFL enrollment status would be inaccurate.

Table 4
Percentage of respondents reporting a willingness to work with their neighbors to complete management activities and statistical comparison by membership category

	Non-member (N) (n=389)	SWC (S) (n=33)	WWOA (W) (n=67)	P-value	Partitioned χ^2 test P-value		
					N–S	N–W	S–W
Traditional forest practices							
Deer management	54.2	63.6	64.2	0.2143			
Fencing costs	38.1	45.5	64.2	**0.0003**	0.4014	**<0.0001**	0.0744
Reciprocal hunting	21.3	42.4	32.8	**0.0055**	**0.0057**	**0.0389**	0.3476
Recreational use	36.0	57.6	47.8	**0.0004**	**0.0015**	**0.0058**	0.3559
Timber sales	28.8	45.5	46.3	**0.0046**	**0.0451**	**0.0044**	0.9388
Tree planting	38.1	45.5	58.2	**0.0073**	0.4014	**0.0019**	0.2289
Ecologically grounded practices							
Ecological restoration	23.9	57.6	46.3	**<0.0001**	**<0.0001**	**0.0001**	0.2876
Ecosystem management	33.2	72.7	61.2	**<0.0001**	**<0.0001**	**<0.0001**	0.2555
Invasive species control	53.2	87.9	85.1	**<0.0001**	**0.0001**	**<0.0001**	0.7039
Prescribed burning	35.7	66.7	56.7	**<0.0001**	**0.0004**	**0.0011**	0.3396
Water quality improvements	39.6	54.6	65.8	**0.0002**	0.0932	**<0.0001**	0.2811

high with many favoring reductions in WI's deer herds by hunting or other means. A recent outbreak of chronic wasting disease in southwest WI's deer heard probably contributed further to this collective sentiment.

5. Discussion

We anticipated that landowners who belong to one or more forest landowner organizations would be more active in management activities than non-members and our results indicate that this is indeed the case. For nearly every forest management activity considered, members were more likely than non-members to have engaged in it. Members were also more willing to consider future cross-boundary cooperation with their neighbors. However, members and non-members differed little in terms of perceived benefits of forest ownership, concerns over potential barriers to management and confidence in their management skills.

5.1. Benefits, outcomes and sustainability

As Egan and Jones (1993) found, NIPF owners' attitudes and stated objectives do not always align with observed management practices. Our analysis suggests a corollary relationship: perceived benefits and concerns regarding NIPF ownership are often similar for members and non-members, even when members are more active in their management activities. Non-members and members differed little in terms of expected benefits and perceived barriers to management (Tables 1 and 2), but they differed a great deal in terms of past management behavior and a willingness to consider future cross-boundary cooperation (Tables 3 and 4). Since members and non-members share perceived benefits of ownership and barriers to management, it seems fair to ask whether membership is a factor in engaging in management activities or simply reflects a desire to be more connected. Additional research will be required to answer this questions, but one point is clear: simplistic assessments of ownership benefits and perceived barriers to management, common queries on landowner surveys and in interviews, often do little to further our understanding of the motivations for management behavior.

Self-reported timber harvesting activities were not significantly different across the membership categories. For those concerned with timber availability in the near future, membership seems of little importance to ensuring a supply of timber from NIPFs. This is consistent with the old axiom that timber on private woodlands is harvested eventually regardless of the current owner's stated objectives (Stone 1970). If the interest, though, is forest sustainability, a wider range

of management behavior becomes important (Table 3). Members were more likely to have completed these activities than non-members. The combination of heightened environmental awareness and concern for ecological processes evident among members of SWC and WWOA did not translate into a 'preservation' mentality. SWC and WWOA members were more likely to work to improve wetlands and streams and remove invasive species, and WWOA members were more likely to plant trees. Sustainability does not rest in timber harvesting alone, but in a variety of management practices that reflect a commitment to a broader management perspective in pursuit of both personal and public values.

We were somewhat surprised at the levels of timber harvesting reported which varied from 29.2% for non-members to 38.8% and 42.4% for WWOA and SWC members, respectively. Given the more ecological orientation of SWC members, the high timber harvesting estimate might seem unusually so, but may be explained by ecological restoration and timber stand improvement activities. Upgrading the quality of degraded hardwood stands was an important message of the SWC's approach. Hence, NIPF owners who may have been otherwise averse to timber harvesting came to accept timber stand improvement and similar cutting practices as a valuable restoration activity. Such an approach that places timber harvesting in a larger restoration framework may reduce the negative perceptions associated with timber harvesting in some circumstances for ecologically minded owners.

Members of WWOA and SWC also appear more willing to consider a wider range of cooperative activities with their neighbors. WWOA members were more likely than non-members to consider all but deer management; SWC members were willing to consider a less extensive list, but were still receptive to cross-boundary cooperation. Such willingness is important and will likely become more so as landscape-related aspects of forest management grow in importance (e.g., biodiversity, large mammal habitat, etc.). Cross-boundary cooperation, if not actual joint management, could facilitate landscape and individual management objectives. Studies from Scandinavia suggest that collective approaches to landscape management may both protect biodiversity and provide income opportunities to owners (Jumppanen et al., 2003; Kurttila et al., 2002). Such considerations may become essential as parcelization continues to create smaller parcels and more owners (Rickenbach and Gobster, 2003; Mehmood and Zhang, 2001). Whether to create economies of scale for small parcels, maintain ecological integrity or both, organizational frameworks that link owners more cohesively will be of greater importance. We believe that the greater willingness to consider cooperation by members reflects this changing reality. By virtue of membership, owners are exposed to a greater array of management philosophies and practices and the changing knowledge base that support them.

5.2. SWC and WWOA: how different?

The organizational forms and missions of the SWC and WWOA are quite different: WWOA emphasizes more traditional forestry practices, while the SWC embraces FSC certification and value-added processing. To many members, resource management professionals and other interested observers, the two organizations could not be more different. The data tell a different story. Direct comparisons between SWC and WWOA members yielded just two significant differences. WWOA members were more likely to have a written management plan and were also more likely to enroll in the MFL. Both organizations encourage their members to create a management plan, so the apparent difference in management planning may simply reflect the relative youth of the SWC. WWOA began in 1979, while SWC only formed in 1998. The SWC's interest in promoting forest certification suggests that management planning is an essential component, but some SWC members simply had not yet received a plan from the organization. A similar argument could be made regarding enrollment in the MFL, but that would ignore anecdotal evidence and unpublished data[4] indicating that most SWC members feel the MFL is too constrictive and prescriptive in the allowed management alternatives.

Given that there are few discernable differences between WWOA and SWC members, SWC's selection of a business cooperative as their organizational

[4] The lead author has recently completed interviews with SWC members about their rational for joining and their experiences as members.

form is curious. The cooperative was intended to be a income-generating enterprise that would process and market members' wood. Significant effort and capital were expended toward these ends: A solar kiln was built and portable sawmills and their operators were retained to process logs. Members, however, rated "income generating potential" as one of their two least important benefits (Table 1). This study does little to answer why this organizational form was selected, but it does underscore the fact that a strong focus on value-added processing to improve the financial position of NIPF owners may be of limited value in maintaining existing forest landowner cooperatives in the U.S.

6. Conclusions and implications

In this study, membership was the independent variable for our analyses: how does being a member of an NIPF owner organization reflect owner characteristics, management behavior and willingness to consider cross-boundary cooperation. Future work will need to consider membership as the dependent variable and seek to explain the motivations and factors that contribute to membership. This may help us better understand why people join landowner organizations in the first place and also how such organizations might shape future management decisions. WWOA, for example, appears to foster general awareness of and education around a wide range of management opportunities including tax treatment, reforestation, invasive species control and timber harvesting. Alternatively, SWC and similar cooperatives appear to focus on specific goals and outcomes as a basis for membership including sustainable forest certification, value-added processing, ecological restoration of prairies and savannas and management planning by members.

Membership matters: whether as a cause or ancillary effect, membership in one or more landowner organization is associated with a greater variety of and engagement in management activities. For policymakers, natural resource managers and educators, organizations provide a target for education and fostering awareness and compliance with other policy initiatives (e.g., best management practices). Organizations sponsor events to keep members informed. Organizations also allow NIPF owners a voice in larger policy debates that affect forestry. By joining together, NIPF owners gain a greater voice and, on occasion, access to decision-makers and decision-making processes.

In the U.S. and elsewhere participation in landowner organizations is voluntary. Without compulsory membership, organizations must appeal to members and provide valued services and opportunities. Given the diverse objectives, interests, and commitment of NIPF owners, it is difficult to imagine a single organization at any particular scale (i.e., local, county, state, national) that could satisfy this variety of demands. In our study area, the two organizations had distinct characteristics. WWOA tends to reflect the traditional ideas of multiple-use forestry through awareness, education and political action. Members are supportive of the Wisconsin Department of Natural Resources (WDNR) and tend to participate in the MFL. Conversely, the SWC reflects different, less traditional values and MFL participation was low. Members were more interested in achieving 'sustainable forestry' through FSC certification and looked to inspiration from ENGOs as opposed to the WDNR. Within this relatively small study area (i.e., three counties), two organizations with similar commitment to NIPF owner issues existed with little overlapping membership and significant potential for growth.

Not all NIPF owners can be accounted for through voluntary NIPF owner organizations as not all people are "joiners". Some landowners do not care for the company or counsel of peers or professionals. Others may pursue individual opportunities such as cost-share programs, forest certification or hiring a consultant. However, as demands for ecosystem management and sustainable forestry increase, groups of landowners, whether formal or informal, will become more important. The landscape is a mosaic of different owners pursuing individual interests. As landscape and societal goals evolve, NIPF owners will come under greater scrutiny and pressure to adopt a wider perspective than a single ownership. NIPF owner organizations already provide much of that perspective and could be vehicles for coordination and/or implementation in the future.

The potential of a greater role for landowner organizations will require a better understanding as to why people join and participate in such organiza-

tions. As two anonymous reviewers noted (and we concur), this manuscript does not place membership in a theoretical framework such as that describe by Olson (1965) or Ostrom (1990, 1998). Our interest when the study began was primarily behavioral, but future research (and practice) could be bolstered substantially with careful consideration of existing theories of group behavior and collective action. As we noted, membership matters, but future research as to why it matters and the extent to which it can be used for individual and societal goals remains unanswered.

Acknowledgements

Funding for this study was provided by the USDA Forest Service Wood Education and Resource Center and the Renewable Resources Extension Act. We very much appreciate the cooperation and assistance of Cooperative Development Services, Sustainable Woods Cooperatives, Wisconsin Department of Natural Resources and Wisconsin Woodland Owners Association in completing this study.

References

Agresti, A., 1996. An Introduction to Categorical Data Analysis, Wiley Series in Probability and Statistics. John Wiley and Sons, New York.

Birch, T.W., 1994. Private forest-land owners of the United States. USDA Forest Service Northeastern Forest Experiment Station, Radnor, PA.

Bliss, J.C., 1992. Evidence of ethnicity: management styles of forest owners in Wisconsin. Forest and Conservation History 36, 63–72.

Bolen, R.W., 1986. The Western Upper Peninsula Forest Improvement District. Paper read at Symposium on nonindustrial private forests: learning from the past, prospects for the future, February 18–20, 1996, at Washington, DC.

Bourke, L., Luloff, A.E., 1994. Attitudes toward the management of nonindustrial private forest land. Society and Natural Resources 7, 445–457.

Brunson, M.W., Yarrow, D.T., Roberts, S.D., Guynn Jr., D.C., Kuhns, M.R., 1996. Nonindustrial private forest owners and ecosystem management: can they work together? Journal of Forestry 94 (6), 14–21.

Campbell, S.M., Kittredge, D.B., 1996. Ecosystem-based management on multiple NIPF ownerships. Journal of Forestry 94 (2), 24–29.

Dennis, D.F., Sendak, P.E., 1991. Factors influencing involvement of a forester in managing nonindustrial forests. Journal of Environmental Management 33, 169–173.

Egan, A.F., 1997. From timber to forests and people: a view of nonindustrial private forest research. Northern Journal of Applied Forestry 14 (4), 189–193.

Egan, A.F., Jones, S., 1993. Do landowner practices reflect beliefs? Implications of an extension-research partnership. Journal of Forestry 91 (10), 39–45.

Greene, J.L., Blatner, K.A., 1986. Identifying woodland owner characteristics associated with timber management. Forest Science 32 (1), 135–146.

Jumppanen, J., Kurttila, M., Pukkala, T., Uuttera, J., 2003. Spatial harvest scheduling approach for areas involving multiple ownership. Forest Policy and Economics 5, 27–38.

Kittredge, D.B., 2003. Private forestland owners in Sweden: large-scale cooperation in action. Journal of Forestry 101 (2), 41–46.

Klosowski, R., Stevens, T., Kittredge, D., Dennis, D., 2001. Economic incentives for coordinated management of forest land: a case study of southern New England. Forest Policy and Economics 2, 29–38.

Knight, R.L., Landres, P.B. (Eds.), 1998. Stewardship Across Boundaries. Island ress, Washington, D.C.

Kurttila, M., Uuttera, J., Mykra, S., Kurki, S., Pukkala, T., 2002. Decreasing the fragmentation of old forests in landscapes involving multiple ownership in Finland: economic, social and ecological consequences. Forest Ecology and Management 166, 69–84.

Kuuluvainen, J., Karppinen, H., Ovaskainen, V., 1996. Landowner objectives and nonindustrial private timber supply. Forest Science 42 (3), 300–309.

Marchant, J., 1996. Landowner association perspective. Paper read at Symposium on nonindustrial private forests: learning from the past, prospects for the future, at Washington, DC.

Mehmood, S.R., Zhang, D., 2001. Forest parcelization in the United States: a study of contributing factors. Journal of Forestry 99 (4), 30–34.

National Research Council, 1998. Forested Landscapes in Perspective: Prospects and Opportunities for Sustainable Management of America's Nonfederal Forests. National Academy Press, Washington, DC.

Neter, J., Wasserman, W., Kutner, M.H., 1990. Applied Linear Statistical Methods: Regression, Analysis of Variance, and Experimental Designs, 3rd ed. Irwin, Homewood, IL.

Olson, M., 1965. The logic of collective action: public goods and the theory of groups. Harvard University Press, Cambridge, MA.

Ostrom, E., 1998. A behavioral approach to the rational choice theory of collective action. American Political Science Review 92 (1), 1–22.

Ostrom, E., 1990. Governing the commons: the evolution of institutions for collective action. Cambridge University Press, Cambridge, UK.

Rickenbach, M.G., Reed, A.S., 2002. Cross-boundary cooperation in a watershed context: the sentiments of private forest landowners. Environmental Management 30 (4), 584–594.

Rickenbach, M.G., Gobster, P.H., 2003. Stakeholders' perceptions of parcelization in Wisconsin's Northwoods. Journal of Forestry 101 (9), 18–23.

Rickenbach, M.G., Kittredge, D.B., Dennis, D., Stevens, T., 1988. Ecosystem management: capturing the concept for woodland owners. Journal of Forestry 96 (4), 18–24.

Rickenbach, M.G., Guries, R.P., Schmoldt, D., Sisock, M., 2001. This ain't hybrid corn: landowners talking across fences. Paper read at Global Initiative and Public Policies: First International Conference on Private Forestry in the 21st Century, March 25–27, 2001, at Atlanta, GA.

Romm, J., Tuazon, R., Washburn, C., 1987. Relating forestry investment to the characteristics of nonindustrial private forestland owners in Northern California. Forest Science 33 (1), 197–209.

Schmidt, T.L., 1998. Wisconsin Forest Statistics, 1996. USDA Forest Service North Central Forest Experiment Station, St. Paul, MN.

Simon, D.M., Scoville, O.J., 1982. Forestry Cooperatives: Organization and Performance. USDA Agricultural Cooperative Service, Washington, D.C.

Stone, R.N., 1970. A comparison of woodland owner intent with woodland practice in Michigan's Upper Peninsula. Dissertation, Forestry, University of Minnesota, St. Paul, MN.

USDA, 1947. Forest Cooperatives in the United States. USDA, Washington, D.C.

USDA, 1965. Forestry Cooperatives. Paper read at Forestry Cooperatives, April 20–21, 1965, at Denver, Colorado.

Washburn, M.P., 1998. Forest owner associations in the United States: linking forest owners to public policy. Dissertation, School of Forest Resources, The Pennsylvania State University, University Park, PA.